

CLAIMS

1. A shoe, in which at least a portion of the upper includes gripping areas resulting from the presence of a coating, said coating providing a dry co-efficient of friction exceeding that of standard athletic leather according to the modified IUP51 test
5 defined herein.
2. A material, suitable for use in the construction of the upper of a shoe, which is at least partially coated with a coating providing a dry co-efficient of friction exceeding that of standard athletic leather according to the modified IUP51 test
10 defined herein.
3. A patch for application to the upper of a shoe, said patch providing at least one surface at least partially coated with a coating providing a dry co-efficient of friction exceeding that of standard athletic leather according to the modified
15 IUP51 test defined herein.
4. A shoe, material, or patch as claimed in any one of claims 1 through 3 respectively, in which said coating comprises a liquid silicone rubber coating.
- 20 5. A shoe, material, or patch as claimed in any one of claims 1 through 3 respectively, in which said coating comprises a highly plasticised coating.
6. A shoe, material, or patch as claimed in claim 5, in which said coating is based on a PVC homopolymer or PVC/PVA copolymer.
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7. A shoe, material, or patch as claimed in claim 6, in which there is included a plasticiser from the group comprising: Dialkyl adipate esters, dialkyl azelates, glycol dibenzoate esters, glycollates such as butyl phthalyl, butyl glycollate, mellitates such as trialkyl trimellitates, a few phenoxy compounds, phosphate
30 esters including triaryl, trialkyl and alkyl-aryl combinations, derivatives of ortho-phthalic acid with emphasis on dialkyl and alkyl benzyl o-phthalates, polyesters

and various dibasic acids with glycols (e.g., adipic, azelaic and phthalic acids with various glycols terminated with a monofunctional compound), pentaerythritol derivatives and sulfonamides.

- 5 8. A shoe, material, or patch as claimed in claim 7, in which there is included a secondary plasticiser from the group comprising: aromatic and mixed aromatics aliphatic oils, chlorinated paraffins, poly-alpha methylstyrene derivatives and esters of high molecular weight alcohols and organic acids, which have marginal compatibility with PVC, monomeric esters of straight chain dibasic acids, certain epoxy derivatives including epoxidized soybean oil, epoxidized tall oil and some epoxy resins.
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9. A shoe, material, or patch as claimed in either claim 7 or claim 8 in which the amount of plasticiser(s) present is 65% or more by weight compared to the polymer or co-polymer.
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10. A shoe, material, or patch as claimed in either claim 7 or claim 8 in which the amount of plasticiser(s) present is $66 \pm 4\%$ by weight compared to the polymer or co-polymer.
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11. A shoe, material, or patch as claimed in any one of claims 7 through 10 which includes a mineral stearate dispersed in an epoxidised soya oil.
12. A shoe, material, or patch as claimed in any one of claims 7 through 10 which includes a polyisobutylene.
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13. A shoe, material, or patch as claimed in any one of claims 4 through 12 which either or both, include or are at least partially coated with a particulate material.

14. A shoe, material, or patch as claimed in any one of claims 1 through 3 which are at least partially coated with a coating which either or both includes a particulate material, or has had a particulate material applied.
- 5 15. A shoe, material, or patch as claimed in claim 14 in which the coating includes either or both an aqueous aliphatic polyurethane dispersion and aqueous aliphatic acrylic dispersion.
- 10 16. A shoe, material, or patch as claimed in claim 15 which includes a cross-linking agent.
17. A shoe, material, or patch as claimed in claim 16 in which the cross-linking agent is an isocyanate.
- 15 18. A shoe, material, or patch as claimed in any one of claims 13 through 17 in which the particulate material includes a mineral.
- 20 19. A shoe, material, or patch as claimed in claim 18 in which the mineral is selected from the group comprising: aluminium oxides, tungsten carbide, silicon carbide, cubic boron nitride, ceramic materials, garnet, a Trizact ® abrasive from 3M, and diamond particulates.
- 25 20. A shoe, material, or patch as claimed in any one of claims 13 through 17 in which the particulate material includes a synthetic plastic material in a particulate or granular form.
21. A shoe, material, or patch as claimed in claim 20 in which the hardness of included plastic particles equals or exceeds a hardness of 75 Shore A.
- 30 22. A shoe, material, or patch as claimed in any one of claims 13 through 17 in which the particulate material comprise a crumbed rubber.

23. A shoe, material, or patch as claimed in any one of claims 12 through 21 in which said particulate material includes particles in the size range of 0.5 – 100 microns inclusive.
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24. A shoe, material, or patch as claimed in any one of the preceding claims when a said coating is applied to a leather material.
25. A shoe, material, or patch as claimed in claim 24 in which the leather is goat or
- 10 kangaroo leather.
26. A shoe, material, or patch as claimed in any one of claims 1 through 23 when a said coating is applied to a fabric or textile.
- 15 27. A shoe, material, or patch as claimed in claim 26 in which the fabric or textile is, or includes, Kevlar.
28. A shoe, material, or patch as claimed in any one of the preceding claims in which a said coating has been applied in a pattern.
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29. A shoe, material, or patch as claimed in claim 28 in which the pattern comprises one or more of: logos, advertising material, graphics, text, alphanumeric characters, repetitive patterns or arrangements.
- 25 30. A shoe, material, or patch as claimed in any one of the preceding claims which includes areas comprising different of said coatings.
31. A shoe, material, or patch as claimed in any one of the preceding claims which includes an area of a the hook and pile material Greptile G200 by 3M.

32. A patch, as claimed in claim 3 or any one of claims 4 through 30 when dependent upon claim 3, which includes a self-adhesive layer.
33. A sports shoe in which at least part of the upper in the toe area possesses a
5 coating of a grip enhancing agent which increases the dry coefficient of friction, when compared to standard athletic leather when measured by a modified IUP51 test as defined herein, said grip enhancing agent being selected from the group comprising: liquid silicone rubbers, PVC polymers with high plasticiser contents, PVC/PVA copolymers with high plasticiser contents, urethane resins with high
10 plasticiser contents, acrylic resins with high plasticiser contents, urethane/acrylic blends or hybrids with high plasticiser contents, particulate materials in combination with previously listed members of this group, and particulate materials in combination with acrylic and/or polyurethane binders.
- 15 34. A patch suitable for attachment to a shoe in which at least part of the upper in the toe area possesses a coating of a grip enhancing agent which increases the dry coefficient of friction, when compared to standard athletic leather when measured by a modified IUP51 test as defined herein, said grip enhancing agent being selected from the group comprising: liquid silicone rubbers, PVC polymers with
20 high plasticiser contents, PVC/PVA copolymers with high plasticiser contents, urethane resins with high plasticiser contents, acrylic resins with high plasticiser contents, urethane/acrylic blends or hybrids with high plasticiser contents, particulate materials in combination with previously listed members of this group, and particulate materials in combination with acrylic and/or polyurethane binders.
- 25 35. A shoe in which at least part of the upper is coated with a coating substantially as described herein and with reference to the contained examples.
- 30 36. A material, suitable for use in the manufacture of the upper of a shoe, in which at least part of the upper is coated with a coating substantially as described herein and with reference to the contained examples.

37. A sports glove in which at least part of the outer contact surface is coated with a coating substantially as described herein and with reference to the contained examples.

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38. A patch suitable for application to a shoe which is at least partially coated with a coating substantially as described herein and with reference to the contained examples.

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